

14. An electric contact including a light emitting thienyl-S,S-dioxide compound.

REMARKS/ARGUMENTS

In view of the content of the outstanding Office Action dated February 13, 2001, Claims 1-8 have been cancelled without prejudice or disclaimer of the subject matter thereof. A new set of product Claims 9-14 has been provided. The new claims as now filed should not be subject to the grounds of rejection under 35 U.S.C. §§ 101, 112, 102 and/or 103 as previously alleged by the Examiner with respect to the now cancelled Claims 1-8. No new matter has been introduced, and all the new claims are fully supported by the description as originally filed, see especially Figure 1, page 2, lines 14-21; page 1, lines 23-26; page 3, lines 6-12 and page 4, lines 1-9. The advantages of the light emitting device according to the subject matter now claimed are described in the specification as filed, for example, page 5, line 11 to page 6, line 11. Moreover, support for the utility of the claimed invention and the non-obviousness thereof may be found in the comparative examples, tables 1 and 2, pages 7, 8 and 9.

With respect to the points raised in the outstanding official action, Applicants' position is as follows:

Rejections Under 35 U.S.C. §112, First Paragraph

New independent device Claims 9 and 14 are not unduly broad in view of the support given by the disclosure of the application as filed, and are clearly enabled by the specification. One feature

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of the device of the present invention relates to an entirely organic light emitting device (or a mere contact device) which employs, (e.g., in the construction thereof, in particular of the light emitting film/substrate), a compound/composition including a light emitting thienyl-S,S-dioxide compound. As it is stated in the specification, a surprising property of the present invention is the use of light emitting thienyl S,S-dioxide, as opposed to other known light emitting organic components, enabling the avoidance of metallic contacts for a power supply and the ability to dispense with encapsulating metal contacts in order to perform a light emitting function in an electronic, organic device. Accordingly, any light emitting compound, already known or even not yet synthesized, but having such S,S dioxide group in the ring, is suitable to be employed in the construction of the light emitting device (and contact device) as claimed in the present application without the need for any undue amount of experimentation. Moreover, in contrast to the Examiner's prior contentions, the new claims do not encompass any thienyl S,S-dioxide, but only those which are "light emitting". The skilled person is therefore provided with very specific and clear guidance as to whether any particular light emitting organic compound he/she discovers, will work for its intended purpose (e.g., if a compound has a thienyl S,S-dioxide group in the ring (or the group can be introduced by state of the art technology) and is light emitting, it is suitable to be employed according to the present invention.

It is well established that in determining issues of claim scope, the key question involves whether it would entail "undue experimentation" by one of ordinary skill in the art to enable the present invention as set forth in claims. See In re Vaeck, 20 USPQ2d 1438 (Fed. Cir. 1991) (enablement is only lacking in cases where undescribed embodiments cannot be made based on the disclosure of the specification without undue experimentation). It is incumbent upon the Patent

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Office, whenever a rejection is predicated upon the doubts that the asserted scope of objective enablement is commensurate in scope with the protection sought, that the Patent Office explain why it doubts the truth or accuracy of statements made in the specification and to backup such assertions with acceptable evidence or reasoning which is consistent with the contested statement.

In determining enablement of the present invention, Applicants submit that the factors provided in Ex parte Forman, 230 USPQ 546 (POBA 1986), should be utilized. In the present case, considerable guidance on how to practice the invention is provided in the disclosure, there was a relatively high level of skill in the art at the time the application was filed, and all the methods needed to practice the invention were well known. In re Wands, 8 USPQ2d 1400 (Fed. Cir. 1988) (enablement was not precluded by the necessity for some experimentation and that a 44% success rate with respect to a screening regimen was sufficient to enable the breadth of the claims at issue); Scripps Clinic and Research Foundation v. Genentech, Inc., 18 USPQ2d 1001 (Fed. Cir. 1991) (open-ended claims were allowable even though there was not a precisely known upper limit).

In the present case, the Patent Office has not presented any persuasive reasoning why the specification does not realistically enable one skilled in the art to practice the invention as broadly as it is claimed. The first paragraph of §112 requires only that the specification enable any person skilled in the art to which the invention pertains to make and use the invention. The Examiner has not presented any evidence whatsoever that a person skilled in the art, if he/she wanted to produce the claimed light emitting, organic LED device, would have any trouble in doing so. Courts have routinely held that enablement is not precluded even if some experimentation is necessary, provided such experimentation is not unduly extensive. Hybritech, Inc. v. Monoclonal Antibodies, Inc., 231

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USPQ 81 (CAFC 1986). In cases involving unpredictable factors (e.g., chemical reactions and physiological activity) the scope of enablement provided by the specification to one skilled in the art varies inversely with the degree of unpredictability of the factors involved. In re Fisher, 166 USPQ 18 (CCPA 1970). A disclosure is enabling, even if a considerable amount of experimentation is involved, if it is merely routine. Ex parte Forman, 230 USPQ 546 (BPAI 1986). The broad allegation that a disclosure is speculative, coupled with a recitation of various difficulties which might be encountered in practice, is not a sufficient basis for requiring proof of operability. In re Chilowsky, 108 USPQ 321 (CCPA 1956), on remand, rejection affirmed, 108 USPQ 575 (CCPA 1962).

Mere conclusory statements by the Patent Office that one skilled in the art would be unable to achieve the results taught by applicant without himself exercising inventive skill are insufficient to establish that the specification contains insufficient operating details to successfully practice the claimed invention. Where one of ordinary skill in the art would know to select the operating conditions necessary to achieve the desired result, the failure of the specification to recite such conditions does not render the specification defective either under the enabling or best mode requirement of 35 U.S.C. §112. In re Karnofsky, 156 USPQ 682 (CCPA 1968); In re Stephens et al., 188 USPQ 659 (CCPA 1976).

The Patent Office also has the burden of providing that one skilled in the art would consider the disclosure in the specification as being insufficient to practice the invention without the necessity of undue experimentation. Ex parte Forman, 230 USPQ 546 (BPAI 1986); In re Angstadt, 190

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USPQ 214 (CCPA 1976). It is not necessary that every last detail of an invention be described, by working examples or otherwise. Ex parte Wolters et al., 214 USPQ 735 (POBA 1979).

In Ex parte Mark, 12 USPQ2d 1904 (POBA 1989), the Board reversed an examiner who rejected claims as non-enabling, arguing that it would take undue experimentation to construct all muteins within the scope of the claims and to screen such mutines to find those exhibiting biological activity. The Board held that using the disclosed method and general knowledge of the art at the time the application was filed, one skilled in the art would be able to routinely determine which particular residues would result in a mutein within the scope of the claims. Similarly, in Ex parte Kung, 17 USPQ2d 1545 (POBA 1989), the Board reversed an examiner and found that reported differences in specificity within T cells was not indicative of sufficient unpredictability to warrant a finding of undue experimentation. Where the specification provides "guidance in selecting the operating parameters that would yield the claimed result, it is fair to conclude that the experimentation required to make a particular embodiment is not "undue." In re Colianni, 195 USPQ 150 (CCPA 1977). Nothing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided through broad terminology or illustrative examples. In re Marzocchi 169 USPQ 367, 369 (CCPA 1971). It is not a function of the claims to specifically exclude either possible inoperative substances or ineffective reactant proportions. In re Dinh-Nguyen and Stenhagen, 181 USPQ 46 (CCPA 1974); In re Anderson, 176 USPQ 331 (CCPA 1973). It is well established that "a claim is not necessarily invalid because some claimed combinations are inoperable." Atlas Power Company v. E.I. DuPont DeNemours and Company, 224 USPQ 409 (Fed. Cir. 1984).

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Applicants respectfully submit that given the guidance provided in the specification and the level of knowledge in the art at the time of the present invention, one of ordinary skill in the art would be able to make and use the present invention as claimed without undue experimentation. Applicants are entitled to patent protection commensurate in scope with the teachings of the specification.

Rejection of Claims Under 35 U.S.C. §101 and §112, Second Paragraph

With respect to the Examiner's §101/112, second paragraph rejections, Applicants believe that all such rejections are rendered moot in view of the new claims presented.

Rejection of Claims Under 35 U.S.C. §102(b) as Anticipated by Barbarella et al.

Applicants believe that new Claims 9-14 avoid and overcome any anticipation rejections made by the Examiner with respect to previously pending claims. Again, Barbarella et al. does not relate to a light emitting device or to the technology concerning the construction thereof. Specifically, Barbarella et al. does not disclose a light emitting organic LED device having at least one film that includes a light emitting thienyl-S,S-dioxide compound that has a ring, and at least one film that directly incorporates a power supply element without the necessity of contacting or welding.

Rejection of Claims Under 35 U.S.C. §103(a)

The Examiner rejected previous claims as being unpatentable over a combination of Barbarella et al. and further in view of Geiger et al.; as well as claims rejected over Pouzet et al., taken alone or taken further in view of Barbarella et al. Finally, the Examiner rejects other claims as being unpatentable over Pouzet et al., taken alone or taken further in view of Barbarella et al., and in further view of Geiger et al. Applicants respectfully traverse the Examiner's rejection of claims for the following reasons.

With respect to the Examiner's contention that the present invention is rendered obvious in view of the prior art Barbarella et al., Pouzet et al. and Geiger et al., Applicants respectfully disagree. One object of the invention (e.g., the objective technical problem solved by the inventors) is to provide an organic light emitting device without the drawbacks of the prior art and in particular, making encapsulation and insertion of metal contacts superfluous (see page 1, lines 21-26 of the specification as filed).

Barbarella et al. and Pouzet et al. do not relate in any manner to a light emitting device or to the technology of construction thereof. There is no teaching or suggestion in any of the cited references relating to what compounds are able to overcome drawbacks of known organic light emitting devices (e.g., those PPV based devices) namely, the necessity of encapsulating metallic contacts. No teaching or suggestion may be found in Barbarella et al. and/or Pouzet et al. relating to a contact device that includes the compounds set forth in the present claims, in order to improve performance. For the above reasons, new Claims 9-14 are believed patentable over both Barbarella et al. and Pouzet et al.

Geiger et al. relates to the construction of an organic light emitting device using oligothiophene compounds. According to Geiger, such compounds are to be employed end-capped. Geiger fails to teach or suggest that his device may be operated without encapsulating the light emitting compounds and without using metallic contacts. In view of the general knowledge in the prior art at the time of the present invention that the features mentioned by Geiger et al. would be necessary (see the disclosure of the present invention as filed, page 1, lines 9-20) the skilled person would have employed such features unless he/she was specifically instructed of the contrary. Therefore, new Claims 9-14 are believed to be patentable over Geiger et al.

New Claims 9-14 are not obvious in view of Barbarella et al., Pouzet et al., Geiger et al. or any combination thereof. As stated above, Barbarella et al. and Pouzet et al. are generic references directed to emitting compounds and are completely silent on how such compounds may be employed to make organic light emitting devices. Geiger et al. relates to a light emitting device wherein only one type of light emitting compound(s) (some oligomers having the same monomer) is employed in a traditional manner. Geiger et al. fails to teach or suggest a particular property of a whole class of compounds, like those claimed (e.g., light emitting thienyl S,S-dioxides), which allows such compounds to be employed to make a non-traditional light emitting device, namely devices that are entirely organic. On the contrary, Geiger et al., discloses the use in a traditional device of an oligothiophene, and thus teaches away from, rather than towards the present invention.

Applicants submit that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggesting supporting the combination. ACS Hospital Systems v. Montofiore Hospital, 221 USPQ 929, 933 (Fed.Cir. 1974).



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Before obviousness may be established, the Examiner must show that there is either a suggestion in the art to produce the claimed invention or a compelling motivation based on sound scientific principles. Ex parte Kranz, 19 USPQ 2d 1216, 1218 (BPAI 1981). Applicants respectfully submit that the Examiner has not established a prima facie case of obviousness because the cited references are devoid of any suggestion to construct an organic light emitting device that does not suffer from the drawbacks of the prior art, and in particular, the significant drawback requiring encapsulation and insertion of metal contacts. It appears that in the present case the only suggestion for the Examiner's combination of the teachings in Pouzet et al., Barbarella et al. and Geiger et al improperly stems from the Applicants' own disclosure and not from the cited references themselves. At best, the Examiner's comments regarding obviousness appear to amount to an assertion that one of ordinary skill in the relevant art would have been able to arrive at Applicants' invention because they would have had the necessary skills to carry out the requisite process steps. This is an inappropriate standard for obviousness. In brief, none of the references, alone or in combination, provide an impetus necessary to cause one skilled in the art to combine the teachings of the references in the way the Examiner has done.

It is well established that an evaluation of the obviousness or non-obviousness of claims must not be made with the benefit of hindsight using the present application as a blueprint to reconstruct the claimed invention from the references. See Interconnect Planning Corporation v. Feil, 227 USPQ 543 (Fed.Cir. 1985). Applicants submit that the Examiner's examination of the present invention should not be predicated upon the obviousness of particular features but rather, should be based upon an evaluation of the invention as a whole. Again, given the lack of any suggestion or

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teaching in any of the cited references to make or use a light emitting, organic LED device comprising at least one film and at least one power supply element wherein at least one film includes a light emitting thienyl-S,S-dioxide compound having a ring, and at least one film directly incorporates a power supply element, without the necessity of contacting or welding, requires the Examiner to withdraw all §103 rejections predicated upon any one of such references or a combination thereof.

To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction -- an illogical and inappropriate process by which to determine patentability. W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made. Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985). "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). It is well established that the mere fact that individual elements of the inventions are old can be found in the prior art is irrelevant. Grain Processing Corp. v. American Maize Products Co., 5 USPQ2d 1788 (Fed. Cir. 1988). It is also well established that the Examiner should not be able to pick and choose individual elements from multiple references to recreate the invention. Polaroid Corp. v. Eastman Kodak Co., 229 USPQ 561 (Fed. Cir.), *cert. denied*, 479 U.S. 850 (1996).

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In determining the scope and content of the prior art, and determining whether the prior art suggested the claimed invention, the references “must be read as a whole and consideration must be given where the references diverge and teach away from the claimed invention”. Akzo N.V. v. United States Int’l Trade Commission, 1 USPQ2d 1241 (Fed. Cir. 1986) *cert denied*, U.S. 909 (1987); Panduit Corp. v. Dennison Mfg. Co., 1 USPQ2d 1593 (Fed. Cir.), *cert denied*, 481 U.S. 1052 (1987).

Courts have advocated that even if the prior art may be modified as suggested by the Examiner, the modification is not obvious unless the prior art suggests the desirability for the modification. In re Fritch, 23 USPQ2d 1780 (Fed. Cir. 1992) (“mere fact that prior art may be modified to reflect features of claimed invention does not make modification, enhance claimed invention, obvious unless desirability of such modification is suggested by prior art). Citing In re Gordon, 221 USPQ at 1127. Moreover, the motivating suggestion must be explicit. Winner International Royalty Corporation v. Wang, 48 USPQ2d 1139 (D.C, D.C. 1998) (“there must have been some explicit teaching or suggestion in the art to motivate one of even ordinary skill to combine such elements so as to create the same invention”).

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

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Respectfully submitted,

SHERIDAN ROSS P.C.

By: 

Joseph E. Kovarik

Registration No. 33,005

1560 Broadway, Suite 1200

Denver, Colorado 80202-5141

(303) 863-9700

Date: 5/10/01

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